इंटरनेट मानक

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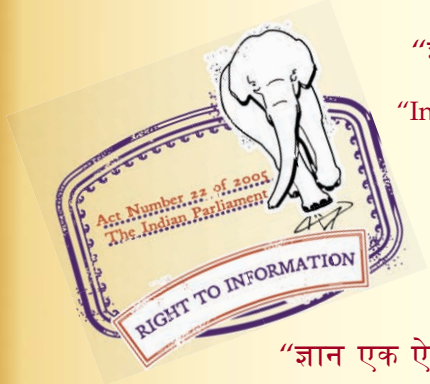
IS 3736 (1995): Canvas boots, rubber sole [CHD 19: Footwear]



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"ज्ञान एक ऐसा खजाना है जो कभी चुराया नहीं जा सकता है"
Bhartṛhari—Nītiśatakam
"Knowledge is such a treasure which cannot be stolen"

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IS 3736 : 1995

भारतीय मानक

कैनवस के बूट, रबड़ सोल – विशिष्टि

(दूसरा पुनरीक्षण)

Indian Standard

CANVAS BOOTS, RUBBER SOLE — SPECIFICATION

(Second Revision)

UDC 685.315.2 : 685.312.122.6

BUREAU OF INDIAN STANDARDS
MANAK BHAVAN, 9 BAHADUR SHAH ZAFAR MARG
NEW DELHI 110002

October 1995

Price Group 4

Footwear Sectional Committee, CHD 019

FOREWORD

This Indian Standard (Second Revision) was adopted by the Bureau of Indian Standards, after the draft finalized by the Footwear Sectional Committee had been approved by the Chemical Division Council.

Ankle-high boots with canvas upper and rubber sole and heel are also known as jungle boots or hunter's boots. These boots are made either by built-up process with pre-moulded sole (umt sole) or by direct moulding process. The canvas boots with rubber sole are extensively used for drill, hunting and other light duty purposes by the Defence and the paramilitary forces in jungles, on hilly terrain, etc.

This standard was originally published in 1966 and was subsequently revised in 1983. Considering the latest developments and in the light of experience gained in this field, the Committee while reviewing the standard decided to update and revised it again. The concerned Technical Committee also felt the need to accommodate as far as possible the requirements of Ministry of Defence since they are one of the largest users of this product. Accordingly the requirements prescribed in IND/TC 3834 Boots, Jungle No. 2, published by Ministry of Defence, have been considered while reviewing this standard.

In this revision, more emphasis has been siven on the performance requirements of sole and upper instead of prescribing material composition and their construction. As a result of which the requirements for materials and accessories have been modified. The following additional requirements have also been introduced in this standard:

i) Tensile strength of rubber soles;
ii) Elongation at break of rubber soles;
iii) Compression set of rubber soles;
iv) Ageing of boots at 70 ± 1°C for 168 h; and
v) Adhesion test.

The requirement of abrasion index has been dropped from this standard in view of introduction of tensile strength and elongation at break. The requirements of ageing at 10 ± l°C for 168 h, consolidation test and adhesion test are expected to ensure better serviceability of boots and better performance in actual use. In this revision the thickness of components also have been modified keeping in view the feed back obtained from the industry and users.

Composition of the Committee responsible for formulation of this standard is given at Annex C.

For the purpose of deciding whether a particular requirement of this standard is complied with, the final value, observed or calculated, expressing the result of a test or analysis, shall be rounded off in accordance with IS 2 : 1960 'Rules for rounding off numerical values (*revised*)'. The number of significant places retained in the rounded off value should be the same as that of the specified value in this standard.

AMENDMENT NO. 3 SEPTEMBER 2003
TO
IS 3736 : 1995 CANVAS BOOTS, RUBBER SOLE — SPECIFICATION
(*Second Revision*)

(*Page* 1, *clause* **4.1.1**) — Substitute the following for the existing:

'**4.1.1** *Upper*

The upper shall consist of Rip Stop Fabric of cotton or manmade or its blend being the over layer and cotton drill as an inner layer and shall conform to the requirements given at Sl No. (i) of Table 1.???

Two fabrics shall be adhered together with rubber compound so as to achieve the requirements as prescribed for consolidation test and composite upper material strength test

Higher value of over layer and inner layer fabric can also be used as agreed to between the manufacturer and the purchaser to meet the special requirements of performances.

Shade of over layer will be agreed to between the purchaser and the manfacturer.'

(*Page* 1, *Table* 1, *Sl No.* 1) — Substitute the following for the existing:

Table 1 Requirements for Overlayer and Inner Layer

Sl No.	Material	Characteristics	Requirement	Method of Test Ref to IS No.
(1)	(2)	(3)	(4)	(5)
i)	Overlayer	Construction	Rip Stop	
		Breaking load in N.*Min* (5 × 20 cm grip):		IS 1969
		a) Wrap	1 650	
		b) Weft	1 350	
		c) Ends/dm	220 ± 5 (2 ply)	IS 1963
		d) Picks/dm	150 ± 5 (2 ply)	

(*Page* 1, *clause* **4.1.3**, *line* 1) — Substitute 'Cotton, man made or blended material '*for*- 'Cotton tape NEWAR'.

(*Page* 2, *clause* **4.1.5.1**) — Substitute the following for the existing:

'**4.1.5.1** Sewing thread cotton, man made or blended shall be used for stitching of upper. For cotton variety thread shall conform to variety No. 28 of IS 1720. Polyester variety thread shall conform to variety No. 9 of IS 9543.

Any other blend of thread would have breaking load not less than above referred requirements.

Sewing thread cotton, manmade or blended shall be used for binding of upper. For cotton variety thread shall conform to variety No. 32 of IS 1720. Polyester variety thread shall conform to variety No. 5 of IS 9543.

Any other blend of thread would have breaking load not less than above referred requirement of specification.'

(*Page* 2, *clause* **4.1.6.1**, *lines* 1 *and* 2) — Insert the words 'of cotton or man made or blended' between 'braided' and 'fabric'.

(*Page* 5, *clause* **4.4.4**, *line* 1) — Delete the word 'seams'.

(*Page* 5, *clause* **4.4.6**) — Substitute the following for the existing:

'**4.4.6** A minimum of seven aluminium, brass or steel eyelets having 10 mm diameter and wall thickness 0.30 to 0.35 mm shall be fitted in each face.'

(*Page* 5, *clause* **4.4.7**, *last line*) — Substitute 'top edge with white cloth for binding of counter' *for* 'top edge with white cloth cotton bias binding'.

(*Page* 5, *clause* **4.4.9**) — Insert the following sentence at the end:

'This is not required when the same is produced in direct moulded construction.'

(*Page* 6, *clause* **4.8**) — Insert the following clause after **4.8**:

'4.9 Composite Breaking Strength Test

From the upper of made up footwear representative sample of width 25 ± 0.5 mm width strip is to be cut along the length of the boot of enough length so as to make it convenient to allow a distance of minimum 30 mm between the jaws of the tensile machine.

Rate of traverse of pulling jaw shall be 100 ± 5 mm per minute.

Two such test pieces will be required to be obtained from the made up footwear and will be subjected to test to break each test piece.

Mean value of each set of test pieces comprising of length wise and height wise test pieces will be 1 000 N/25 mm width minimum.'

(CHD 19)

AMENDMENT NO. 2 AUGUST 2001
TO
IS 3736 : 1995 CANVAS BOOTS, RUBBER SOLE — SPECIFICATION
(Second Revision)

(*Page* 2, *clause* **4.1.7.1**) — Delete the clause and renumber the subsequent clauses.

[*Page* 3, *clause* **4.1.7.3** (renumbered as 4.1.7.2)] — Substitute the following for the existing:

'**4.1.7.2** The rubber components shall conform to Table 4 when tested.'

(*Page* 3, *Table* 4, *Note* 1) — Add the following after the existing text

'However in case it is not possible then **4.2.5.3** of IS 13695:1993 shall be followed.'

(*Page* 5, *clause* **4.7**) — Substitute the following for the existing:

'4.7 Consolidation Test

From the quarter, cut a strip of 25.0 ± 0. 5 mm width along the length of the boot and of sufficient length to permit separation over a length of 75 mm. Carry out the test on two test pieces (one from each odd) at the rate of traverse of 100 ± 10 mm per minute in accordance with IS 3400 (Part 5): 1986 or Static Dead Load Method as given in Annex C. The individual adhesion value for consolidation test shall not be less than 30 N (3.0 kgf) for each of the test pieces

NOTE — Manuel recording may also be done in absence of the machine with auto recording devicee.'

[*Page* 6, *clause* **4.8**] — Substitute the following for the existing:

'4.8 Adhesion Test

From the upper foxing portion where it is adhered to the canvas cut a strip of 8.0 ± 0.5 mm width along with the length of the sole at the waist portion and of sufficient lengh to permit separation over a length of at least 75 mm. Carry out the test on two test pieces (one from each odd) at the rate of traverse of 100 ± 10 mm per minute in accordance with IS 3400 (Part 5):1986 or the Static Dead Load Method as given in Annex C.

The individual adhesion value noted/recorded shall not be less than 8 N (0.8 kgf) for each of the test pieces (*see* Note under 4.7).'

[*Page* 7, Annex B] — Insert the following new Annex C after Annex B and renumber Annex C as Annex D:

'ANNEX C

(*Clauses* 4.7 *and* 4.8)

C-1 STATIC DEAD LOAD METHOD

C-1.1 Apparatus

The apparatus required for the adhesion test by the static mass method consists of a supporting frame, testing clamps, mandrels, calibrated weights, and weight carriers. The supporting frame shall be of such design that clamps for strip specimens hang on it vertically and mandrels for rings specimens are supported on it horizontally. The frame shall have sufficient height to permit the weight carrier to be suspended from the test specimens by means of clamps and shall hang freely during the progress of the test, provision shall also be made to support the mandrels so that they revolve freely with minimum friction. Suitable apparatus is shown in Fig. 4.

C-1.2 Calibration of Apparatus

Calibrate the weights annually.

C-1.3 Cutting Tool

Maintain the cutting tool carefully so that the edge is sharp enough to avoid leaving ragged edges and pulling outside threads from the fabric.

C-2 PROCEDURE

C-2.1 Strip Test Piece (*see* Fig. 4)

Separate the parts of the strip to be tested by hand at one end of the strip specimen and at a sufficient distance to permit the jaws of the testing clamp to be attached. Suspend the strip on the spike of the vertical frame or board and attach the ply to be separated, to the grip. Attach the loaded scale pan to the grip through a light spring. The total mass of the grip, spring, loaded scale pan and attachments shall be taken as the spplied load. Obtain either the load required to cause separation of 25 mm/min graphically by selecting various loads or for a known or apecified load, detemine the rate of separation Repeat the procedure on the separate plies from the face ply to the centre ply. Test the second specimen commencing with the back ply and proceeding again to the centre ply.

Note — Precautions shall be taken during the test to prevent side threads from pulling out and interfering with the test result. Where this occurs excessively due to the threads not being perallel to the edge of the strip, the test pices shall be discarded and a fresh one prepared.

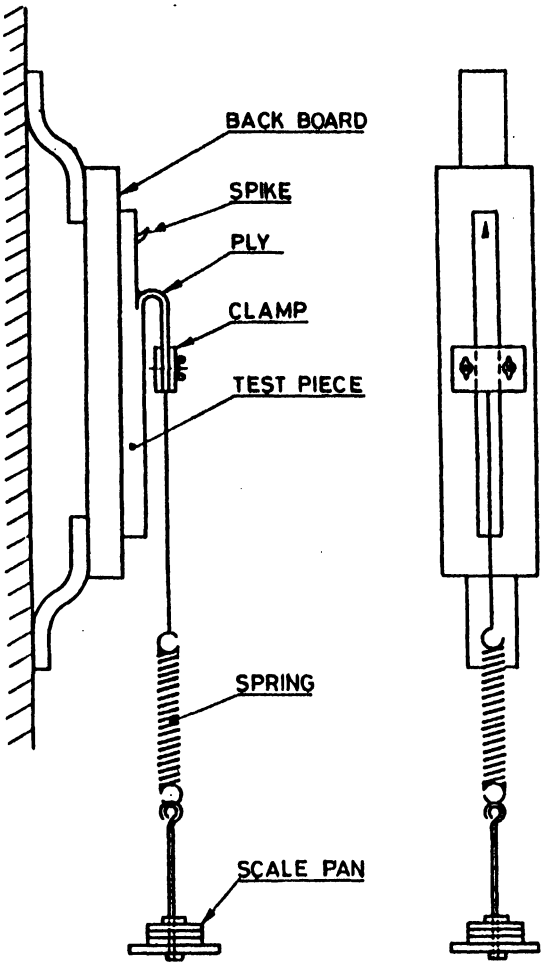


FIG. 4 APPARATUS FOR STATIC LOAD MEIHOD ON STRIP TEST PIECE

C-2.2 Expression of Results

Express the result as avenge force in kilo newtons per metre width required to cause a separation of the plies at 25 mm/min or obtain the rate of separation at a known or specified load.

C.3 REPORT

The report shall include the following:

a) Adhesion value, that is median, range, statistical minimum, observed minimum, observed maximum;

b) The type of specimen and thickness of specimen;

c) All observations and recorded data on which the results are based;

d) Date of manufacture or vulcanization of rubber; if known;

e) Date of test;

f) Statement of the method used (Dead load/ Static mass or dynamic on constant traverse); and

g) Temperature of the test and its duration, and temperature and relative humidity of conditioning.'

(CHD 19)

Reprography Unit, BIS, New Delhi, India

AMENDMENT NO. 1 SEPTEMBER 1999
TO
IS 3736 : 1995 CANVAS BOOTS, RUBBER SOLE— SPECIFICATION

(Second Revision)

(*Page* 1, *clause* **4.1.3.1**) — Insert the word 'and' at the end of the first sentence and merge the next sentence with the first sentence.'

(CHD 19)

Reprography Unit, BIS, New Delhi, India

Indian Standard

CANVAS BOOTS, RUBBER SOLE — SPECIFICATION

(Second Revision)

1 SCOPE

This standard prescribes requirements and methods of sampling and test for canvas boots, ankle-high having rubber sole and heel.

2 NORMATIVE REFERENCES

The Indian Standards listed in Annex A contain provisions which through reference in this text, constitute provisions of this Indian Standard. At the time of publication, the editions indicated were valid. All standards are subject to revisions, and parties to agreements based on this Indian Standard are encouraged to investigate the possibility of applying the most recent editions of the Indian Standards indicated in Annex A.

3 TERMINOLOGY

For the purpose of this standard, the definitions given in IS 2050 : 1991 shall apply.

4 REQUIREMENTS

4.1 Material

4.1.1 *Upper*

The upper shall consist of cotton fabric conforming to the requirement given at Sl No. (i) of Table 1 as an overlayer and cotton drill conforming to the requirement given in Sl No. (ii) of Table 1, as an inner layer or lining. The two fabrics shall be firmly adhered together with rubber compound. The shade of canvas upper used shall be olive green or any other shade as agreed to between the purchaser and the supplier.

4.1.1.1 *Colour fastness*

The dyed fabrics prescribed in **4.1.1** shall be fast to daylight and mechanical washing. Fastness to daylight shall be of rating 4 or better, when tested in accordance with IS 686 : 1985 or IS 2454 : 1985. However, in case of dispute the method prescribed in IS 686 : 1985 shall be considered as referee method.

4.1.1.2 Fastness to mechanical washing (mild) shall be of rating 4 or better, when tested in accordance with IS 764 : 1979.

4.1.2 *Lining Material*

For covering of the insole, cotton drill conforming to Table 1, Sl No. (ii) shall be used. For detachable insole, bleached cotton twill of breaking load 390 N *Min* in warp way and 200 N *Min* in weft way (when tested in accordance with IS 1969 : 1985) having 390 ± 10 ends/dm and 195 ± 5 picks/dm shall be used.

4.1.3 *Binding Material*

Cotton tape *NEWAR* used as binding material shall conform to the requirements as mentioned in Table 2, when tested in accordance with the methods referred to in col 4 of Table 2.

4.1.3.1 If agreed to between the purchaser and the supplier, the colour of the tape shall also match the shade of the upper. The dyed tapes shall be fast to

Table 1 Requirements for Canvas and Cotton Drill

(*Clauses* 4.1.1, 4.1.2 *and* 4.1.4)

Sl No.	Material	Characteristic	Requirement	Method of Test, Ref to IS No.
(1)	(2)	(3)	(4)	(5)
i	Ca???as	Breaking load in N, *Min*		
		a) Warp	1 000	1969 : 1985
		b) Weft	900	
		c) Ends/dm	250 ± 5	1963 : 1981
		d) Picks/dm	180 ± 3	
ii)	Drill	Breaking load in N, *Min*		
		a) Warp	1 000	1969 : 1985
		b) Weft	550	
		c) Ends/dm	390 ± 10	1963 : 1981
		d) Picks/dm	195 ± 5	

Table 2 Requirements of Cotton Tape *NEWAR*

(*Clause* 4.1.3)

Sl No.	Characteristic	Requirement	Method of Test, Ref to IS No.
(1)	(2)	(3)	(4)
i)	Width, mm. Min	13	1954 : 1990
ii)	Breaking load on 50 cm test length. N, *Min*	360	1969 : 1985

daylight and mechanical washing. Fastness to daylight shall be of rating 3 or better, when tested in accordance with IS 686 : 1985 or IS 2454 : 1985. However in case of dispute the method prescribed in IS 686 : 1985 shall be considered as referee method.

4.1.3.2 Fastness to mechanical washing (mild) shall be of rating 3 or better, when tested in accordance with IS 764 : 1979, subject to agreement between the purchaser and the supplier.

4.1.3.3 Black tapes shall be free from sulphur dyes when tested in accordance with Annex B.

4.1.4 *Reinforcement Material*

The back seam, joining two quarters at the back of the heel shall be reinforced with a not less than 25 mm wide tape made out of material conforming to Sl No. (i) of Table 1.

4.1.5 *Thread for Upper Closing*

4.1.5.1 The breaking load and construction of sewing threads shall conform to Table 3 for varieties No. 8 and 29.

4.1.5.2 The colour of the threads shall be asagreedto between the purchaser and the supplier. The dyed threads shall conform to the following requirements:

4.1.6 *Fabric Laces*

4.1.6.1 The boots shall be provided with braided fabric laces 115 ± 5 cm in length, matching the colour of the upper. The laces shall have a minimum breaking load of 450 N, when tested between 18 cm grips, the rate of traverse of power actuated grip being 30 cm/min. The two ends of the lace shall be provided with suitable metal or plastic tips. Black laces shall be free from sulphur dyes when tested in accordance with Annex B.

4.1.6.2 If agreed to between the purchaser and the supplier, the laces shall be fast to daylight and mechanical washing. Fastness to daylight shall be of rating 3 or better, when tested in accordance with IS 686 : 1985 or IS 2454 : 1985 . However in case of dispute the method prescribed in IS 686 : 1985 shall be considered as referee method.

4.1.6.3 Fastness to mechanical washing (mild) shall be of rating 3 or better, when tested in accordance with IS 764:1979, subject to agreement between the purchaser and the supplier.

4.1.7 *Rubber Components*

4.1.7.1 the soles and heels shall conform to Type 2 of IS 5676:1995.

Sl No.	*Agency*	*Rating*	*Method of Test, Ref to IS No,*
i)	Light	5 or better	2454 : 1985
ii)	Washing	4 or better	765 : 1979
iii)	Perspiration	4 or better	971 : 1966

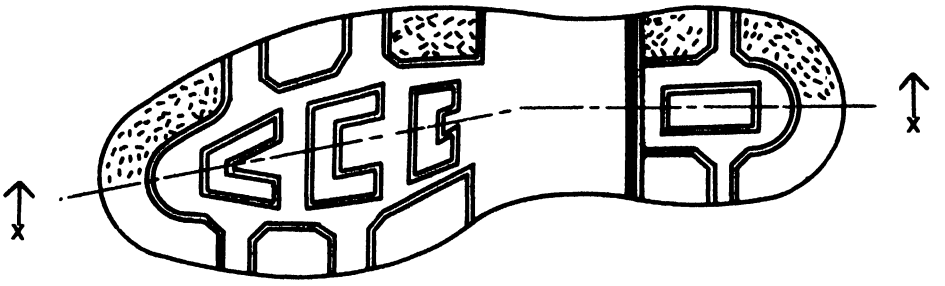
Table 3 Requirements for Sewing Threads

(*Clause* 4.1.5.1)

Sl No.	**Variety No**	**Construction**	**Single Thread Breaking Load,** Newtons (kgf), *Min*	**Method of Test Ref to IS No.**
(1)	(2)	(3)	(4)	(5)
i)	8	3 ply (3 strands, each single)	27.0 (2.75)	1670 : 1991
ii)	29	6 cord (3 strands, each 2 fold)	21.1 (2.15)	1670:1991

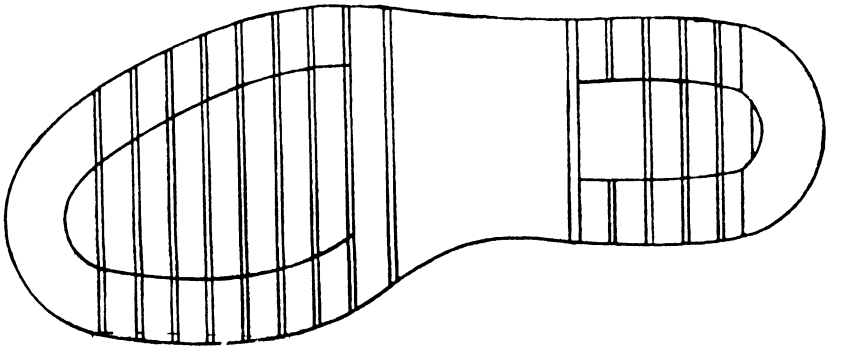
4.1.7.2 The design and pattern of rubber sole and heel shall be as agreed to between the purchaser and the supplier.The recommended design of soles are shown in Fig. 1 and 2.

4.1.7.3 The rubber components shall also conform to Table 4 when tested from a finished boot.



NOTE — This illustration is diagrammatic only and is not intended to illustrate details of design.

FIG. 1 STUD DESIGN OF THE SOLE AND HEEL



NOTE — This illustration is diagrammatic only and is not intended to illustrate details of design.

FIG. 2 RIPPLE DESIGN FOR SOLE AND HEEL

Table 4 Physical Requirements of Rubber Components

(*Clause* 4.1.7.3)

Sl No.	Characteristic	Foxing and Toe-cap	Outer Sole and Heel	Method of Test, Ref to IS No
(1)	(2)	(3)	(4)	(5)
i)	Relative density, *Max*	1.4	1.2	3400 (Part 9) : 1978
ii)	Hardness, IRHD	—	60 ± 5	3400 (Part 2) : 1980
iii)	Flexing resistance, number of cycles			3400 (Part 16) : 1974
	a) Initial crack, *Min*	—	60 000	
	b) Cut growth at the end of 150 000 cycles, Percent, *Max*	—	600	
iv)	Change in initial hardness after accelerated ageing	—	+ 5	3400 (Part 4) : 1987
	for 24 h at 100 ± 1°C	—	– 0	3400 (Part 2) : 1980
v)	Tensile strength in MPa, *Min*		10.5	3400 (Part 1) :1987
vi)	Elongation at break, in percent, *Min*	—	250	3400 (Part 1) : 1987
vii)	Compression set, in percent. *Max*	—	20	3400 (Part 10) : 1977

NOTES

1 While cutting the test pieces from the made-up boots, adequate care shall be taken so that minimum fraying at the edges occur.

2 Reading from 30 to 95 (IRHD) are approximately the same as those of the shore durometer, Type A.

4.1.7.4 *Ageing*

The boots shall be also aged at 70 ± 1°C for 168 h, on completion of which the test pieces taken from the soles and heels of the boots shall conform to the physical requirements prescribed in Table 5.

4.1.7.5 *Thickness of components*

Individual components of the boots shall comply with the thickness and material requirements prescribed in Table 6.

4.2 Design

4.2.1 The boots shall be made to the pattern and design as agreed to between the purchaser and the supplier.

4.2.2 The recommended design of boots is shown in Fig. 3.

4.3 Leg Height

The leg height of the boots for size 8 shall be 160 ± 2 mm with an increase or decrease of 4 mm of the nominal height for each bigger or smaller sizes respectively when measured at the inside from the back of the boot from insole to the top.

4.4 Construction

4.4.1 The boots shall be made on metallic lasts conforming to IS 7329 : 1974.

4.4.2 The canvas upper shall be lined with bleached drill cloth.

Table 5 Change in Physical Requirements After Ageing

(*Clause* 4.1.7.4)

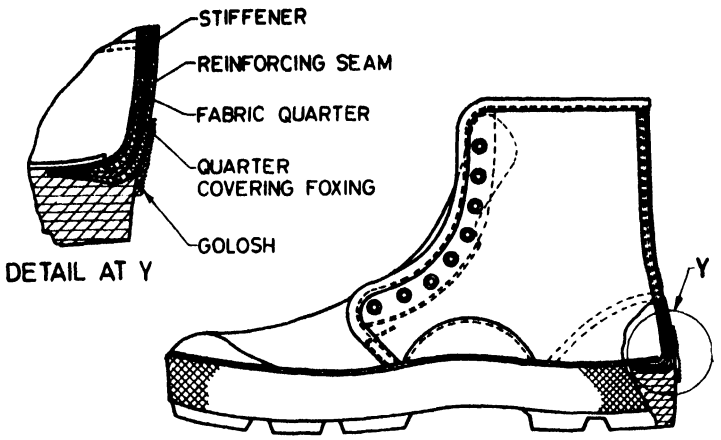
Sl No.	Characteristics	Change in Percent of Original Value	Method of Test, Ref to IS No.
(1)	(2)	(3)	(4)
i)	Tensile strength	+ 5 –25	3400 (Part 1): 1987
ii)	Elongation at break	+ 5 –25	3400 (Part 1): 1987

Table 6 Thickness of Individual Components of Canvas Boots, Rubber Sole

(*Clause* 4.1.7.5)

Sl No.	**Component**	**Material**	**Thickness, mm, *Min***
(1)	(2)	(3)	(4)
i)	Sole:		
	Forepart:	Rubber	
	a) With cleat		10.0
	b) Without cleat		3.0
	Heel:	Rubber	
	a) With cleat		15.0
	b) Without cleat		9.0
ii)	Toe cap (outer)	Rubber	1.3
iii)	Strengthening arch piece	Rubber/Rubber with fabric	1.3
iv)	Circular piece[1)]	Rubber/ Rubber with fabric	1.3
v)	Detachable insole[1)]	Sponge rubber covered with twill	As agreed to between the purchaser and the supplier
vi)	Inner sole	Suitable mix of rubber compound with cotton flock or sponge rubber	2.0
vii)	Bottom filling	do	1.0
viii)	Heel piece (stiffener)	Rubberized fiabric	1.3
ix)	Toe puff	do	0.8
x)	Foxing	Rubber	2.0

[1)]Optional



NOTE — These illustrations are diagrammatic only and are not intended to illustrate all details of design.

FIG. 3 CANVAS BOOTS. RUBBER SOLE

4.4.3 The upper shall be stitched on a lockstitch machine, with 30 to 40 stitches per decimetre by thread of variety No. 8 and variety No. 29 cotton sewing thread conforming to **4.1.5** using variety No. 29 for taping and binding and variety No. 8 for remaining seams. The top, side and front edges of the quarters and tongue shall be bound with cotton tape *NEWAR* of not less than 13 mm width using variety No. 29 thread.

4.4.4 The back seams of the quarter shall be reinforced with a strip, not less than 25 mm wide, of either upper material or canvas. In case of composite upper material the edges of the strip shall be bound by cotton tape (*NEWAR*). When canvas cloth is used the edges shall be folded and shall be stitched with two rows of stitching.

4.4.5 The tongue shall be either half or full bellow depending on the requirement of the purchaser and shall be made from composite material prescribed for the upper in **4.1.1**. in case of half bellow. The full bellow tongue shall be made out of canvas cloth as prescribed in Sl No. (i) of Table 1.

4.4.6 A minimum of seven aluminium, brass or steel eyelets of size 7.5 mm (collar dia)and 4.7 ± 0.1 mm overall height shall be fitted in each face.

4.4.7 The toe shall be reinforced with a toe puff cemented inside and outside with rubber toe cap. The heel piece (counter) or stiffener shall be set from the bottom of the lining and bound flat on the top edge with white cloth cotton bias binding.

4.4.8 A strengthening rubber arch piece shall be firmly pasted and stitched at the middle arch of the inside quarter. Another strengthening rubber piece, circular in shape 35 ± 1 mm in diameter, may be pasted and stitched at the centre of the inside quarter (just over the inside ankle bone) if desired by the purchaser.

4.4.9 The joint of the upper and sole shall be strengthened by frictioning a rubberized cloth of minimum width 10 mm, on both sides at the back and seat portion.

4.4.10 A 25 mm *Min* wide and 2 mm *Min* thick rubber golosh in serrated, diamond or any other design, as agreed to between the purchaser and the supplier, shall be fitted all round the sole edge of the boot. The golosh shall not extend below the edge of the sole.

4.5 Finish

4.5.1 Each pair of boot shall be provided with a pair of braided fabric laces of the quality as prescribed in **4.1.6**.

4.5.2 In appearance, general workmanship, finish and in all other respects, not defined in this standard, the boot shall be similar to those of the sample approved by the purchaser, if any.

4.6 Mass

The mass of finished boots, rubber sole, of size 8 shall not exceed 1130 g per pair, and the mass shall increase or decrease by 75 g per pair for each bigger or smaller size respectively.

4.7 Consolidation Test

Representative samples of width 25.0 ± 0.5 mm cut from the quarter and tested for adhesion in accordance with IS 3400 (Part 5) : 1986 shall have an adhesion such that the rate of separation under a load of 30 N between the two layers, when applied for 1 min, shall not be more than 25 mm/ min.

4.8 Adhesion Test

From the upper-foxing portion, where it is adhered to the canvas, parallel to the waist of sole, cut a strip of length 100 mm and width 8 mm. Separate out the plies initially by breaking the bond to a length of about 75 mm. Carry out the test on two specimens in accordance with IS 3400 (Part 5) : 1986. There shall be no further separation within 1 min at a load of 10 N for each of the two specimens.

5 PACKING AND MARKING

5.1 Packing

The boots shall be packed in pairs in packing cases or cardboard boxes as agreed to between the purchaser and the manufacturer.

5.1.1 Each such package shall contain boots of one size and one fitting only.

5.2 Marking

The size of the boots shall be legibly stamped on waist of the insole-fabric covering. Indication of the source of manufacture together with the batch or month and year of manufacture should also be legibly stamped at the waist of the insole-cover.

5.2.1 *BIS Certification Marking*

The product may also be marked with Standard Mark.

5.2.1.1 The use of the Standard Mark is governed by the provisions of the *Bureau of Indian Standards Act,* 1986 and the Rules and Regulations made thereunder. The details of conditions under which the licence for the use of Standard Mark may be granted to manufacturers or producers, may be obtained from the Bureau of Indian Standards.

6 SAMPLING

Representative samples of canvas boots, rubber sole, shall be drawn as prescribed in IS 6368 : 1971.

ANNEX A
(*Clause* 2)

LIST OF REFERRED INDIAN STANDARDS

IS No.	*Title*
686 : 1985	Method for determination of colour fastness of textile materials to daylight (*first revision*)
764 : 1979	Method for determination of colour fastness of textile materials to mechanical washing. Test 3 (*second revision*)
765 : 1979	Method for determination of colour fastness of textile materials to mechanical washing, Test 4 (*second revision*)
971 : 1983	Method for determination of colour fastness of textile materials to perspiration (*first revision*)
1670 : 1991	Textile-yarn — Determination of breaking load, elongation at break of single strand (*second revision*)
1954 : 1990	Methods for determination of length and width of fabrics (*second revision*)
1963 : 1981	Methods for determination of threads per unit length in woven fabrics (*second revision*)
1969 : 1985	Methods for determination of breaking load and elongation at break of woven textile fabrics (*second revision*)
2050 : 1991	Glossary of terms relating to footwear (*first revision*)
2454 : 1985	Methods for determination of colour fastness of textile materials to artificial light (xenon lamp) (*first revision*)
3400	Methods of test for vulcanized rubbers:
(Part 1): 1987	Tensile stress-strain properties (*second revision*)
(Part 2): 1980	Hardness (*first revision*)

IS No.	*Title*	*IS No.*	*Title*
(Part 4) : 1987	Accelerated ageing (*second revision*)	(Part 16) : 1974	Measurement of cut growth of rubber by the use of the ross flexing machine
(Part 5) : 1986	Adhesion of rubbers to textile fabrics (*second revision*)	5676 : 1995	Moulded solid rubber soles and heels (*second revision*)
(Part 9) : 1978	Density (*first revision*)	6386 : 1971	Method for sampling of rubber and rubber combination footwear
(Part 10): 1977	Compression set at constant strain (*first revision*)	7329 : 1974	Metal lasts for safety rubber canvas ankle boots

ANNEX B

(*Clause* 4.1.6.1)

METHOD FOR DETECTION OF SULPHUR DYES IN BLACK COLOURED LACES

B-1 PROCEDURE

B-1.1 Boil the laces in alkaline hydrosulphite solution for one minute. If the shade is reduced to pale brown or yellow colour and on oxidation restored to the original colour, sulphur dyes shall be suspected to be present.

B-1.2 For confirmation, boil the laces in acid stannous chloride solution in a test tube covered with a piece of filter paper moistened with lead acetate. A blackish / brown stain with metallic lustre confirms the presence of sulphur dyes.

ANNEX C

(*Foreword*)

COMMITTEE COMPOSITION

Footwear Sectional Committee, CHD 019

Chairman	*Representing*
AIR COMMODORE V. B. BATRA	Directorate General Quality Assurance, Ministry of Defence, Government of India, New Delhi.
Members	
SHRI A. P. AGGARWAL	Steel Authority of India Ltd, Ranchi
SHRI V. M. ASHDHIR	Bharat Leather Corporation Ltd, Agra
REPRESENTATIVE	Indian Rubber Institute, Calcutta
SHRI M. P. BAJPAI	Tannery & Footwear Corporation of India Ltd, Kanpur
SHRI K. K. HAJELA (*Alternate*)	
SHRI A. BANDYOPADHYAY	Ministry of Defence (R&D), Kanpur
SHRI B. B. DAS (*Alternate*)	
SHRI S. BANERJEE	Madura Coats Limited, Madurai
SHRI K. S. RAMA RAO (*Alternate*)	

(*Continued on page* 8)

(*Continued from page* 7)

Members	*Representing*
SHRI J. BASAK	Bihar Rubber Company, Ranchi
SHRI J. CHAKRABORTI	Standing Committee for Safety in Steel Industry, Durgapur
SHRI SHIB KUMAR (*Alternate*)	
SHRI KARAN CHAND	Export Inspection Council of India, Madras
SHRI H. H. SIDDIQUI (*Alternate*)	
SHRI KRISHANU CHATTERJEE	Bata India Limited, Calcutta
SHRI B. N. DAS	Central Leather Research Institute, Madras
SHRI G. MD. SADIQ (*Alternate*)	
SHRI B. DUTTA	Bengal Waterproof Ltd, Calcutta
SHRI D. DAS (*Alternate*)	
SHRI ADARSH GUPTA	Liberty Footwear Co, Karnal
SHRI GAUTAM GUPTA	Ministry of Defence (DGQA). New Delhi
SHRI G. C. KANAUJIYA (*Alternate*)	
SHRI B. N. MONDAL	Indian Leather Technologists Association, Calcutta
SHRI SATYA BRATA CHANDRA (*Alternate*)	
DR R. PANDA	National Engineering Industries Ltd, Calcutta
SHRI G. S. LAKHOTIA (*Alternate*)	
SHRI U. S.PAUL	Footform, Calcutta
SHRJ A. SEHGAL	Tata Export Ltd, Dewas
SHRI K. CHATURVEDI (*Alternate*)	
SHRI D. K. SETH	Development Commissioner (SSI), New Delhi
SHRI N. N. DEBNATH (*Alternate*)	
SHRI Y. K. SHARMA	Directorate General of Mines Safety, Dhanbad
SHRI B. BHATTACHARYA (*Alternate*)	
SHRI S. K. WADHWA	Directorate General of Technical Development, New Delhi
SHRI K. K. MAHESHWARI (*Alternate*)	
SHRI ANJAN KAR, Director (Chem)	Director General, BIS (*Ex-offlcio-Member*)

Member Secretary
SHRI P. MUKHOPADHYAY
Joint Director (Chem)

Composition of Non-Leather General Purpose Footwear Subcommittee, CHD 019 : 06

Convener

SHRI B. DUTTA	Bengal Waterproof Ltd, Calcutta

Members

DR SANIA AKHTAR	CIPET, Lucknow
SHRI A. K. GUPTA (*Alternate*)	
SHRI J. BASAK	Bihar Rubber Company, Ranchi
SHRI S. K. BASU	Bharat Leather Corporation Ltd, Agra
SHRI K. CHATTERJEE	Bata India Limited, Calcutta
SHRI D. DAS	Bengal Waterproof Ltd, Calcutta
SHRI B. N. DAS	Central Leather Research Institute, Madras
SHRI G. MD. SADIQ (*Alternate*)	
SHRI S. S. GATTANI	Chemicals and Plastics India Ltd, Madras
SHRI ADARSH GUPTA	Liberty Footwear Company, Karnal
SHRI SUNDER LAL	DGS & D, New Delhi
SHRI J. C. NAKRA	Oil and Natural Gas Commission, Dehradun
DR R. PANDA	National Engineering Industries Ltd, Calcutta
SHRI G S. LAKHOTIA (*Alternate*)	
SHRI U. S. PAUL	Footform, Calcutta
SHRI D. K. SETH	Office of the Development Commissioner (SSI), New Delhi
SHRI D. K. GUHA ROY (*Alternate*)	

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BUREAU OF INDIAN STANDARDS

Headquarters:

Manak Bhavan, 9 Bahadur Shah Zafar Marg, New Delhi 110002
Telephones : 331 01 31, 331 13 75

Telegrams: Manaksanstha
(Common to
all offices)

Regional Offices: Telephone

Central : Manak Bhavan, 9 Bahadur Shah Zafar Marg
NEW DELHI 110002 — 331 01 31, 331 13 75

Eastern . 1/14 C. I. T. Scheme VII M, V. I. P. Road, Maniktola
CALCUTTA 700054 — 37 84 99, 37 85 61, 37 86 26, 37 86 62

Northern : SCO 335-336, Sector 34-A, CHANDIGARH 160022 — 60 38 43, 60 20 25

Southern : C. I T. Campus, IV Cross Road, MADRAS 600113 — 235 02 16, 235 04 42, 235 15 19, 235 23 15

Western : Manakalaya, E9 MIDC, Marol, Andheri (East)
BOMBAY 400093 — 632 92 95 632 78 58, 632 78 91, 632 78 92

Branches: AHMADABAD. BANGALORE. BHOPAL. BHUBANESHWAR. COIMBATORE. FARIDABAD. GHAZIABAD. GUWAHATI. HYDERABAD. JAIPUR. KANPUR. LUCKNOW. PATNA. THIRUVANANTHAPURAM.

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